

***Coelliccia sasamotoi* sp. nov. from Vietnam and Laos (Odonata: Platycnemididae)**

Do Manh Cuong*

409 – 57A, Tap the Bo Thuy san, 20/22 Nguyen Cong Hoan, Hanoi, Vietnam

(Received 13 July 2009; final version received 14 June 2011)

Coelliccia sasamotoi sp. nov. is described based on specimens of both sexes collected from central Vietnam and Laos. It differs from related species in details of coloration, the shape of the male terminalia, and the shape of the posterior lobe of the female pronotum.

Keywords: Zygoptera; Platycnemididae; *Coelliccia sasamotoi*; new species; Vietnam; Laos

Introduction

The genus *Coelliccia* Kirby, 1890 contains c.60 species and is distributed from India to Japan, occurring as far south as Java. The typical habitat of the genus is forest streams. The last review of the entire genus was made nearly 80 years ago (Laidlaw 1932); since then the number of described species has more than doubled. The number of species of *Coelliccia* known from Vietnam has increased in recent years with the discovery of a number of hitherto unknown species (e.g. Asahina 1997, Do 2007), many of which remain undescribed. The named species known to occur in Vietnam are *C. acco* Asahina 1997, *C. chromothorax* (Selys, 1891), *C. cyanomelas* Ris, 1912, *C. hoangliensis* Do, 2007, *C. montana* Fraser, 1933, *C. onoi* Asahina, 1997, *C. poungyi* Fraser, 1924, *C. pyriformis* Laidlaw, 1932, *C. satoi* Asahina, 1997, *C. scutellum* Laidlaw, 1932 (*C. tomukunii* Asahina, 1997 is considered here to be a junior synonym of *C. scutellum*), *C. ueoni* Asahina, 1997, and *C. mingxiengis* Xu, 2006 (a new record for the Vietnamese fauna, from Tam Dao National Park, Vinh Phuc Province by Do in 2009). The species *C. yamashakii*, recorded by Do (2007), is *C. scutellum* and now is known from Phu Quoc Island, Kien Giang Province, Vietnam.

On a field trip to Huong Son, Ha Tinh Province, central Vietnam in 2004, I collected three male specimens of an unnamed species of *Coelliccia* in a limestone forest area. Later, as I was studying these specimens, Mr Akihiko Sasamoto informed me of similar specimens he had collected in Laos. After comparing the specimens from Vietnam and Laos, I determined that they

*Email: docuong@gmail.com

belong to the same species, described here as *C. sasamotoi* sp. nov. Terminology for wing venation used here follows that in Rehn (2003), which was derived from Riek and Kukalová-Peck (1984).

***Coeliccia sasamotoi* sp. nov.**

(Figures 1–2)

Specimens examined

Holotype ♂ Rao Mac, Huong Son, Ha Tinh Prov., Central Vietnam, 3 May 2004, leg. M.C. Do. Paratypes: 2 ♂, data as holotype; 2 ♂, 1 ♀, Lak Sao, Bolikhhamay Prov., Kaew Neua Pass area, central east Laos, 11 July 2005, leg. A. Sasamoto; 6 ♂, 4 ♀, same locality and collector, 12 July 2005. The holotype will be deposited in the Vietnam National Museum of Nature.

Etymology

Named for Mr Akihiko Sasamoto, a Japanese odonatologist, who independently collected the paratypes from Laos and who pointed out that they represented a new species.

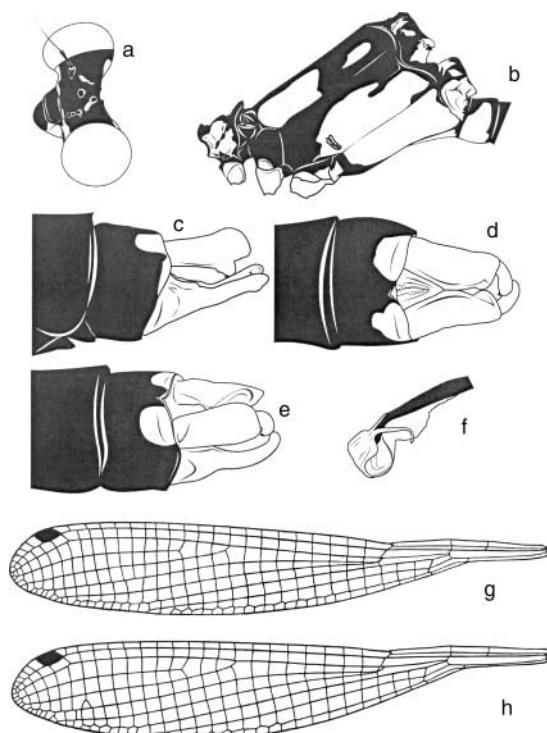


Figure 1. *Coeliccia sasamotoi* sp. nov. ♂: (a) head, oblique view; (b) thorax, lateral view; (c) anal appendages, lateral view; (d) anal appendages, dorsal view; (e) anal appendages, d view; (f) penis; (g) forewing; (h) hind wing.

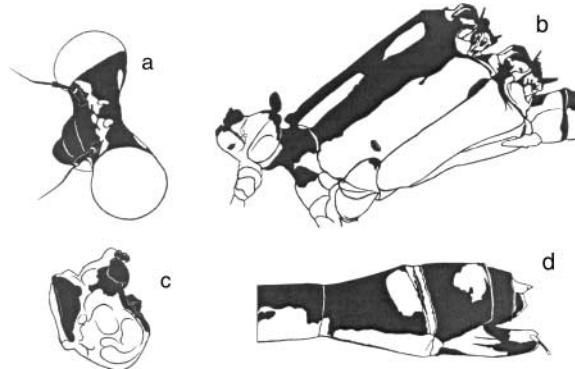


Figure 2. *Coeliccia sasamotoi* sp. nov. ♀: (a) head, oblique view; (b) thorax, lateral view; (c) prothorax, oblique view; (d) terminal abdominal segments and ovipositor, lateral view.

Description of holotype male

Head. Labium largely brownish white, end hooks of the labial palps shining black. Labrum, clypeus and frons deep black, with broad blue band anteriorly on frons above the clypeus, narrowing centrally (Figure 1a). Mandible bases sky blue with black margin. Genae sky blue. Vertex and postfrons matte black, with small bean-shape blue spot running from each lateral ocellus towards, but not quite reaching, antenna, and a pair of blue transversely oriented tear-drop shaped postocular spots (Figure 1a).

Thorax. Prothorax black with large lateral blue marking occupying much of propleuron and parts of anterior and middle pronotal lobes (Figure 1b), with irregular black stripe along notopleural suture. Synthorax black with blue markings. A pair of markings on each side of mesepisternum (Figure 1b); a small upper mark and much larger lower mark covering almost half the lower part of mesepisternum. Mesepimeron largely black. Mesinfraepisternum black except small area above middle coxa. Metepimeron mostly occupied by large bluish marking of irregular shape (Figure 1b). Metepimeron largely bluish, meteinfraepisternum black above, pale below. Legs cream yellowish, with blackish extensor and flexor surfaces on femur and tibia; apices of tibia and tarsus wholly black; the tarsal claws dark, unequally bifid. Wings (Figure 1g–h) hyaline with brownish pterostigma covering $1\frac{1}{5}$ – $1\frac{1}{4}$ cells. RP3 arising slightly proximal to subnodus in both wings, IR2 arising at subnodus in Fw, slightly distal to it in Hw. Discoidal cell trapezoidal with basal and costal edges shorter in both wings. Fw with 20 Px and Hw with 19 Px. RP2 arising proximally at about 8th–9th postnodal cross vein from base of wing. IR1 arising proximally at 11th–12th postnodal cross vein from base of wing. Three postdiscoidal cells to level of subnodus in both fore and hind wings. Arculus at about second antenodal cross vein from base of wing.

Abdomen. Slender, black with yellow and bluish markings. S1 with broad pale blue spot laterally, tapering toward dorsum. S2 with ventrolateral pale blue stripe, neither end of which reaches corresponding intersegmental zone. S3 with basal blue annulus, interrupted dorsally, and apico-lateral yellowish blue marking, gradually tapering forward. S4–S7 with apical spots similar to that of S3. S7–S9 wholly black. S10 black, gently depressed on the dorso-apical border, with faint apical dorsolateral dark yellow markings (Figure 1d–e). Sternites of S1–S6 dark yellow, becoming gradually blacker apically on S7–S9.

Anal appendages. Superior appendages goldenrod yellow, about $1\frac{1}{5}$ times length of S10. In lateral view, thick and club shaped, slightly widening apically, with ventral subapical tooth at

c.2/3 of their length (Figure 1c). In dorsal view, broad and roughly oblong, widening apically, rounded at tips, with inner margin sinuous (Figure 1d). Inferior appendages of similar colour to superior appendages, with small black tooth at apex, of typical shape for the genus and slightly longer than the superiors (Figure 1c, e).

Penis. (genital ligula; Figure 1f). 1st segment robust, without setae on sclerotized shaft; 2nd segment expanded laterally; 3rd segment fan-shaped, with pair of centrally placed apical flagella arising from a common origin.

Measurements (mm). Hw 27.5; abdomen (excl. appendages) 45.0; superior appendages c.1.0

Female

As in male except generally more robust and as noted below.

Head. Sky-blue markings of male replaced with bluish yellow; markings originating from lateral ocelli more extensive, forming irregular transverse stripe extending to compound eye margin (Figure 2a).

Thorax. Prothorax (Figure 2b, c) mostly yellow except for extensive black area on the anterior lobe, narrowly separated from posterior and central black area on median lobe, entire posterior lobe black. Posterior lobe consisting of broad raised median part with rounded top and pair of small dog-ear shaped lateral parts. Synthorax (Figure 2b) black with bluish-yellow markings. Overall marked similarly to male, but lower marking on mesepisternum slender, half as wide as mesepisternum; upper mark almost as in male. Pale marking on metepisternum more extensive than in male. Wings with venation similar to male. In Fw 17–19 Px, and 17–18 Px in Hw.

Abdomen. Black with yellow markings; pattern very similar to male, with blue markings replaced by yellow. Each marking a little broader than corresponding marking in male. S8 black with apical dark yellow lateral marking (Figure 2d), sternite of same colour. S9 black with uneven dark yellow spot dorsolaterally on each side in apical half. S10 and appendages mostly black. Ovipositor (Figure 2d) black with yellow basally and apically, reaching a little beyond cerci.

Measurements (mm). Hw 25.3–25.8; abdomen (excl. ovipositor) 41.0.

Variation in male paratypes

There is little variation among male paratypes except some wing venation characteristics: Px of forewing 20–21, Px of forewing 18–19.

Measurements (mm). Hw 27–27.5; abdomen (excl. appendages) 44.5–45.7; superior appendages 1–1.1.

Habitat

Found in pristine forest on limestone mountains at about 400–600 m.

Diagnosis and discussion

Males of *C. sasamotoi* bear a superficial resemblance to those of *C. didyma* because of the similar marking on the synthorax. However, the lower mesepisternal marking of *C. sasamotoi* is much broader than that of *C. didyma*, and the latter species has much more extensive pale markings on the terminal abdominal segments; moreover the two species are easily told apart by the structure of the anal appendages. The club-like (in lateral view) superior appendage of *C. sasamotoi* is distinctive and serves to separate the male easily from most other regional species. Of species with the superior appendage of similar shape in lateral view, that of *C. hoangliensis* is much shorter, that of *C. poungyi* has the prominent ventral tooth placed at around mid-length, and *C. chromothorax* and *C. scutellum* are easily separated from *C. sasamotoi* by their bright yellow or greenish-yellow, undivided mesepisternal markings and more extensive pale markings on S9–S10. The enigmatic *C. pyriformis*, known only from the type from Tonkin, is said to have superior appendages “rather club-shaped” but without a “marked projection” and with the inferiors “much longer” (Laidlaw 1932), and also differs in many details of coloration. The ranges of *C. chromothorax* and *C. scutellum* overlap that of *C. sasamotoi*. Amongst regional species the penis of *C. sasamotoi* appears to be most similar to that of *C. chromothorax* and *C. hoangliensis*, with two long terminal flagella arising from a common origin; the penis of *C. scutellum* apparently has never been figured. It is likely that *C. chromothorax*, *C. hoangliensis*, *C. sasamotoi* and *C. scutellum* are closely related.

The female of *C. sasamotoi* differs from all other named species known from Vietnam and Laos in the structure of the posterior pronotal lobe, in having divided mesepisternal markings and other details of coloration.

Acknowledgements

I am sincerely thankful to Mr Akihiko Sasamoto, who not only kindly passed me the specimens from Laos to do the description, but also has helped me many times for my research in Vietnamese dragonflies. I also thank Rory Dow and Mike May who helped me in completing and revising the manuscript.

References

Asahina, S. (1997). Records of the Northern Vietnamese Odonata taken by the expedition members from the National Science Museum, Tokyo. 5. Coenagrionidae, Protoneuridae, Platycnemididae. *Bulletin of the National Science Museum, Tokyo (A)* 23(1), 17–34.

Do, M.C. (2007). *Coelliccia hoanglienensis* spec. nov., a new platycnemid damselfly from Hoang Lien Mountains in the north of Vietnam (Zygoptera: Plastinemididae[sic]). In B.K. Tyagi (Ed.) *Odonata: Biology of Dragonflies* (pp. 343–348). Jodhpur, Rajasthan, India: Scientific Publishers.

Laidlaw, F.F. (1932). A revision of the genus *Coelliccia* (Order Odonata). *Records of the Indian Museum*, 34, 7–42, 3pls.

Rehn C.A. (2003). Phylogenetic analysis of higher-level relationships of Odonata. *Systematic Entomology*, 28, 181–239.

Riek, E.F. & Kukalova-Peck, J. (1984). A new interpretation of dragonfly wing venation based upon Early Upper Carboniferous fossils from Argentina (Insecta: Odonatoidea) and basic character states in pterygote wings. *Canadian Journal of Zoology*, 62, 1150–1166.